

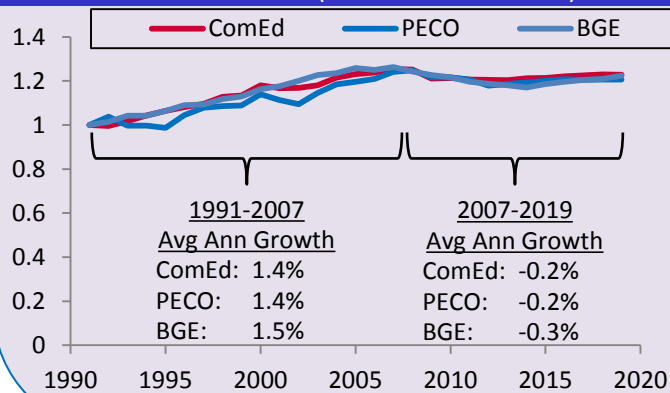
# The World Has Changed

Utilities are facing new and significant uncertainty and challenges:

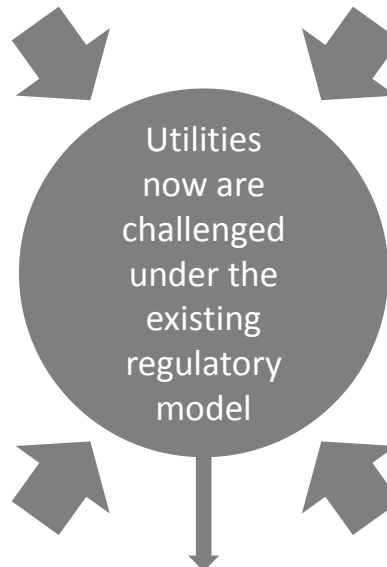
## Declining Electric Load Growth

- Energy efficiency and conservation have become a part of the general culture, and are facilitated by new usage control technologies
- Customer self-generation is being increasingly adopted
- Low natural gas prices make natural gas a more attractive electricity substitute

Total Retail Load (weather-normalized)\*



\* Values expressed as a factor of 1991 load value.



Roughly 2/3 of utility credit ratings were "A-" level or higher in 2000, compared to less than 1/3 today.

## Need for Increased Investment

- Desire to ensure greater reliability and resiliency (post Superstorm Sandy, Hurricane Irene)
- General aging infrastructure
- AMI and Smart Grid deployment
- Higher level of power quality needed for the digital economy
- Grid cybersecurity

## Disruptive Technologies

- Greater distributed energy resource adoption (solar, wind, batteries, etc.) due to lowered DER costs and innovative financing
- Alternative vehicle penetration is increasing
- Pace of technology change is outpacing regulatory responses

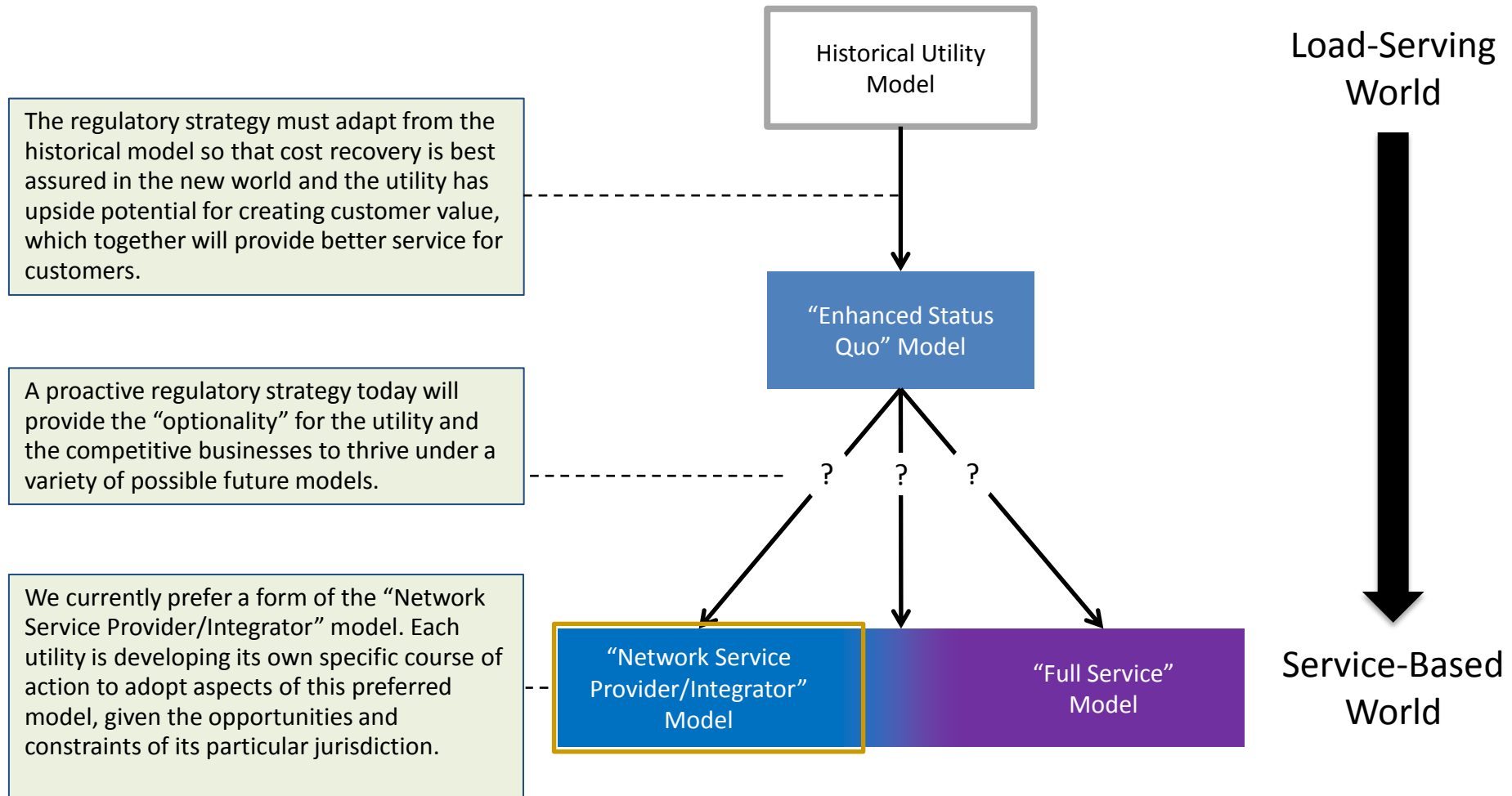
At the same time, customer needs and desires are increasingly differentiated:

- Reliability, Quality, Security – different uses of power, digital economy demands, back-up power
- Affordability – relationship between price and quality, price stability, time-of-use pricing
- Environmental Stewardship – concern about climate change, increased rooftop solar PV
- Usage Management – LED lighting, thermostats, smart appliances & home automation

This presents new opportunities for our utilities.

# Regulatory Strategy Concept – Transitioning to a New World

An ideal regulatory strategy will navigate and influence the transition from a load-serving world to a service-based world:



# Utility Model Spectrum

	Enhanced Status Quo (ESQ)	Network Service Provider/Integrator (NSPI)	Customer Full Service (CFS)
Business Model & Functions	<ul style="list-style-type: none"> <li>Maintain low cost universal service</li> <li>Provide some enhanced technology for reliability and resilience</li> <li>Grid functions to deliver energy</li> </ul>	<ul style="list-style-type: none"> <li>Add to ESQ new uses of network</li> <li>Distribution operator functions like RTO managing two-way power flows and myriad intermittent and dispatchable resources</li> <li>Optimize communications network: metering functions, public lighting, charging stations</li> </ul>	<ul style="list-style-type: none"> <li>Add to ESQ and NSPI</li> <li>Offer full array of generation and related services, including DG, energy efficiency services, and financing options</li> </ul>
Operational Needs	<ul style="list-style-type: none"> <li>Address aging infrastructure; build, maintain, operate distribution grid; provide moderate to high level of reliability/resiliency at low cost</li> <li>Invest in foundational automation technology, smart meters, remote monitoring and control, and distribution automation</li> <li>Administer state-mandated EE</li> <li>Invest in security measures</li> <li>Interconnect DG on demand</li> </ul>	<ul style="list-style-type: none"> <li>Incorporate technology for measurement, data capture, and control related to management of hybrid grid</li> <li>Integrate DG resources into planning and operation of grid by sending correct price signals and managing two-way power flows</li> <li>Compensate customers for technologies that benefit the grid; charge customers for the value the grid provides (due to usage profiles); potentially meter other utilities</li> <li>Ensure opportunity to optimize network</li> </ul>	<ul style="list-style-type: none"> <li>Offer wide variety of customized, value-added products and services to customers (e.g., enhanced reliability, better power quality, energy management, generation, network capabilities of smart grid, product bundling)</li> <li>Provide creative price structures for energy products and services</li> <li>Finance customer-owned resources, such as DG and energy efficiency</li> </ul>
Regulatory Model Elements	<ul style="list-style-type: none"> <li>Address financial impacts of declining loads: match rate structure with cost structure</li> <li>Address stranded cost risk: long-term planning with pre-approval</li> <li>Address regulatory lag with future test year or reconciliation mechanism</li> <li>Approval of pilot projects involving emerging technologies</li> <li>Bilateral performance incentives</li> </ul>	<ul style="list-style-type: none"> <li>Enabling leg/reg for new grid activities (e.g., system balancing, control behind the meter, some utility DG ownership)</li> <li>Pricing structures for premium reliability services; redefine "standard service," competitive tariffs, special contracts</li> <li>Backup and other value-based charges</li> <li>Address innovation: fund shorter asset lives, shorter rate cases, innovation fund</li> </ul>	<ul style="list-style-type: none"> <li>Reassess structural model</li> <li>Enabling legislation/regulation to own and/or ratebase DG on a widespread basis, and offer/price a wide variety of tiered products and services on a regulated and competitive basis without regulatory clawback</li> <li>Address regulatory treatment of data</li> </ul>
Provide Financial Security, Serve Basic Customer Needs		Expand Into All Customer Services	